

EXPLORING *the causes* *of* health disparities

The UNC School of Public Health's explorations into the causes of health disparities and the ways that race and ethnicity affect disease are long-term and far-reaching. Our work in this area extends from studies investigating diet and physical activity changes in developing countries to explorations of the way stress affects health. Read on to learn more.

Are you what you eat?

Studies show that oxidative stress may be related causally to the incidence of many chronic diseases, including cancer, and consumption of antioxidants may reduce oxidative stress levels. Cancer rates are also generally higher in African-Americans compared to whites. Dr. Jessie Satia, assistant professor of nutrition and epidemiology and special



assistant to the dean for diversity at the School, is trying to learn whether people's eating habits affect the levels of oxidative damage in their bodies. With an "antioxidant nutrient questionnaire," she is collecting self-reported information from study participants (which include African-Americans and whites) on what they eat. To validate the antioxidant nutrient questionnaire, she is also collecting information on her study participants' eating habits via phone interviews and is collecting blood samples from participants to measure the levels of antioxidants in their blood. With this study, she hopes to discover how well the nutrient questionnaire measures people's eating habits and find out if African-Americans in her study have higher levels of oxidative damage in their blood and lower antioxidant intakes than whites. ►►

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Excess weight & disease incidence



Dr. June Stevens

Does obesity have more harmful effects on some ethnic groups than others? That's a question Dr. June Stevens wants to answer. Using data from Atherosclerosis Risk in Communities (ARIC) and from the People's Republic of China Study, Stevens is comparing weight and rates of diabetes, hypertension and hyperlipidemia among African-Americans, American whites and Chinese.

Studies have repeatedly shown that, on average, at the same height and weight, Chinese men and women tend to have more fat tissue and less muscle tissue than whites and Blacks. Whites tend to have more fat and less muscle than Blacks. Stevens is investigating whether these differences translate into differences in the effect of obesity on the risk of heart disease. "Some policy makers have proposed that the ethnic differences in body composition indicate that guidelines for healthy body weight should differ among ethnic groups," says Stevens. "However, we believe that a deeper understanding of the associations between body composition, ethnicity and heart disease risk is needed before different standards are proposed."

Obesity development & cardiovascular disease risk among Filipino women & their offspring

Understanding the factors influencing weight gain and cardiovascular disease among women from randomly selected urban and rural communities in Metro Cebu, Philippines during a period of rapid socioeconomic and dietary change, has been a long-term project of Dr. Linda Adair, professor of nutrition at the UNC School of Public Health.

This 21-year study has followed more than 2,100 adult women, collecting height, weight, skin-fold and blood pressure measurements at various intervals as well as information about diet and daily activities. Adair found that the prevalence of overweight and obesity rose from 5 percent in 1984 to nearly 43 percent in 2005 among women who were under 60 at the time of the 2005 project survey. Fewer than half a percent of these women were obese in 1984, however by 2005, ten percent ▶▶



A 21-year UNC nutrition study of 2,100 Filipino women in Metro Cebu, Philippines, found that the prevalence of overweight and obesity rose from 5 percent in 1984 to nearly 43 percent in 2005 among women under 60. Changes in diet and physical activity are influencing these weight gains.

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were obese, having a Body Mass Index (BMI) greater than 30. BMI is an indirect measure of body fatness calculated from height, weight.

The socioeconomic shifts influencing weight gains in the Philippines are similar to those happening globally: Jobs are becoming increasingly sedentary due to continued advances in technology; people are expending less energy doing normal daily activities; and diets are changing. In many countries, including the Philippines, the lowered cost of cooking oil has resulted in people adopting more high-fat diets.

“The pattern of obesity that develops in this Asian population is one of ‘central obesity,’ marked by a high waist-to-hip ratio—indicative of more abdominal fat,” Adair says. “The combination of obesity and high waist-to-hip ratio continues to contribute to risk of hypertension in this population.”

Of particular interest is that in Filipino women, risk of hypertension is increased at a lower BMI than in Caucasian and African-American women, leading some researchers and health care experts to suggest that the cut-off point to define overweight should be lower in Asians.

“Some have suggested using a BMI of 23 instead of 25 to define elevated risk in Asians,” Adair notes. This is important, since past approaches to BMI standards have been more of a “one size fits all” approach.

Adair recently was awarded funding from the National Heart, Lung, and Blood Institute to study how obesity, central fat patterning, and weight gain history relate to blood pressure, insulin resistance, and serum lipid profiles in this cohort of adult women.

Additionally, she will be comparing clustering patterns for these risk factors among mothers in the Cebu group and one of their young adult offspring. A unique feature of this study is 21 years of health history data on two generations, along with blood samples taken from mothers and young adult offspring in the 2005 survey that will allow researchers to look for genetic markers for health conditions such as obesity, hypertension, high cholesterol and diabetes. Together, what is learned from Adair’s study benefits not just the people of Cebu but people around the world.

Racial differences in prostate cancer risks and outcomes

Black men have a significantly greater chance of being diagnosed with and dying from prostate cancer than white men, and rates in the Southern United States are among the highest in the world. UNC researchers are exploring why.

Dr. Paul Godley, adjunct associate professor of epidemiology and biostatistics at the UNC School of Public Health and associate professor of hematology and oncology at the UNC School of Medicine and director of the UNC Program on Ethnicity, Culture and Health Outcomes (ECHO), has explored differences between African-Americans and whites in nutritional risk factors for prostate cancer and in survival rates after ▶▶

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prostate cancer treatment. Currently, he is testing the hypothesis that racial disparities in prostate cancer mortality are associated with disparities in the diffusion of state-of-art treatments and examining whether there are racial differences in the efficacy of PSA screening for prostate cancer. The PSA (prostate-specific antigen) blood test is the one most commonly recommended for the purpose of screening for prostate cancer.

Psychosocial stress & the risk of uterine fibroids

UNC School of Public Health researchers are exploring whether there is a connection between stress and the development of uterine fibroids, one of the most common benign tumors among women of childbearing age. Although many women do not experience adverse symptoms with their fibroids, some have heavy menstrual bleeding, pain and bladder pressure.

African-American women have a two- to nine-fold higher risk of either being diagnosed with fibroids at a younger age or having larger, more advanced fibroids than white women. Using data from the National Institute of Environmental Health Sciences's Uterine Fibroid Study as well as the Perceived Racism Study—an ancillary study to the Uterine Fibroid Study—Dr. Anissa Vines, research assistant professor of epidemiology at the School and associate director of the Ethnicity, Culture, and Health Outcomes (ECHO) Program, is examining the association between fibroids and psychosocial stress, perceived racism and urinary cortisol—a biomarker of stress. Knowing more about the causes of fibroids could lead to better methods to prevent and/or treat them.



Dr. Anissa Vines

Exploring worldwide changes in diet and physical activity

Obesity levels are rapidly increasing worldwide and consequently, so are diabetes, cardiovascular disease and cancer. Much of the blame lies with increases in high-fat and high-sugar diets along with decreases in physical activity on a global level, says Dr. Barry Popkin, professor of nutrition in the UNC Schools of Public Health and Medicine who heads the UNC Interdisciplinary Obesity Center. Popkin studies the “nutrition transition,” a way of looking at the stages of how populations eat, how active they are, and how these patterns shift over time. (See www.nutrans.org.)

Changes in diet, activity levels and rates of non-communicable diseases are taking place not just in wealthier countries, but also among poor populations in developing countries, Popkin says. “Diabetes and obesity are adding to the global health disparity facing the poor,” he says. “Underlying global forces are at the heart of these changes. Technological changes have reduced physical energy expended at most activities; the ‘fresh market’ in developing countries is being replaced by supermarkets with processed foods; global agricultural policies have led to cheaper caloric sweeteners, vegetable oils and animal-source foods which tend to result in higher-fat diets; and mass media access has expanded to increasing corners of the developing world.”

— By Kathleen Kearns